

October 28, 1999

Mr. Jeffrey A. Dhont
USEPA Region IX
Mail Code H-7-1
75 Hawthorne Street
San Francisco, California 94105

Subject: **Well Sampling and Abandonment Report (No. G-10)
Montrose Superfund Project
20201 South Normandie Avenue, Los Angeles, California**

Dear Mr. Dhont:

This letter report documents groundwater monitoring well sampling and abandonment activities associated with the Montrose Superfund Project in Los Angeles, California (Figure 1). Off-site well G-10 is located north of the Montrose property, as shown in Figure 2, on the former McDonnell Douglas property located at 19503 South Normandie Avenue (now Boeing). The location of well G-10 interfered with planned redevelopment activities at this property, and therefore, the Boeing Realty Company had requested that the well be abandoned to accommodate their redevelopment plans.

Telephone

562.951.2000

Facsimile

562.951.2100

On June 16, 1999, a draft well sampling and abandonment workplan was submitted to EPA Region IX for review. In a letter dated June 24, EPA requested that the workplan be revised to address some additional issues. A revised workplan was submitted to EPA on June 28, and EPA conditionally accepted the revised workplan in a letter dated June 30. The first of two conditions, inspection of the well screen by video-log, was incorporated into the final well sampling and abandonment workplan submitted to EPA on July 12. The second condition, characterization of soil generated during well abandonment, would not be required as described in the cover letter to the July 12 final workplan. Since a contractor to Boeing Realty Company excavated the soil around the well as part of their redevelopment activities, Montrose would generate no soil as part of their well abandonment work. A copy of the July 12 workplan is included as Attachment A.

On July 13, following a review of Montrose's responses to conditions, EPA provided verbal authorization to proceed with implementation of the workplan and advised Earth Tech that a formal written approval letter would follow. Written authorization of the final workplan was ultimately provided by EPA in a letter dated October 4, which is included as Attachment B.

Planning and Permitting

In preparation for the sampling and abandonment activities, project team personnel familiarized themselves with the well construction details provided in Appendix C, *Final Remedial Investigation Report for the Montrose Site*, May 18, 1998. On June 30, an application for a well abandonment permit was submitted to the Los Angeles County Department of Health Services (LACDHS). The application was verbally approved by Mr. Al Bragg of LACDHS that same day, and a hard copy of the approved permit was later received and is included as Attachment C. Following approval of the well abandonment permit by LACDHS and workplan by EPA, Boeing and Boeing's contractors were notified of the implementation schedule for well sampling and abandonment.

E A R T H  T E C H

A tyco INTERNATIONAL LTD. COMPANY

BOE-C6-0235943

On July 14, a down-hole logging tool equipped with a video camera was lowered into well G-10 for the purpose of casing and screen inspection. The video inspection was performed to verify that the well screen was open and free of debris prior to abandonment activities. The dedicated well pumps (two) were removed to accommodate the down-hole camera. The inspection system consisted of a surface control unit with a video picture monitor and a high-resolution black and white downhole camera fitted with a wide-angle lens. The video inspection showed that the top of groundwater was located at 65.9 feet below the top of casing, the top of the screen was located at 157 feet, and the total depth of the well was located at 194.5 feet. The well screen appeared open, intact, and in good condition. CH2M Hill, EPA's contractor, witnessed the inspection at the time of the taping and determined that the well screen was in satisfactory condition to proceed with the abandonment activities.

Groundwater Well Sampling and Analysis

On July 14, well G-10 was gauged, purged, and sampled in accordance with the protocols in the EPA approved workplan. An electronic interface probe was used to gauge the static water level of the well prior to purging and sampling. The depth to water was measured relative to the top of the well casing and was found to be 65.7 feet. The dedicated pumps (two) were not functional and were removed. A portable electric submersible pump was lowered to the well bottom and used to purge a minimum of 3 well volumes (255 gallons) from well G-10. A total of 265 gallons of water was purged from well G-10 during which groundwater parameters including temperature, pH, and electrical conductivity were monitored. Well purging data was recorded and is included as Attachment D. The well purge water was contained in five labeled steel Department of Transportation (DOT) approved drums and relocated to the Montrose property pending disposal. Groundwater sampling was performed once the water level in the well returned to at least 80 percent of its static level. Groundwater samples were collected using a clean disposable (single-use) bailer and laboratory-supplied containers. Each sample container was clearly labeled to identify the well name, date and time of collection, sampler name, analysis, and sample preservative. One duplicate sample was taken for the purpose of quality control. Samples were stored in a cooler and delivered to Columbia Analytical Services, Canoga Park, California, for analysis following proper chain-of-custody procedures.

The groundwater samples were analyzed following EPA Method 8260 for the presence of dissolved volatile organics. The well samples were also analyzed for the presence of parachlorobenzene sulfonic acid (p-CBSA) using high pressure liquid chromatography (HPLC). The laboratory analytical report is included as Attachment E. Groundwater analytical results are also presented in Table 1 and summarized as follows:

- Trichloroethene (TCE) was detected at 2.1 and 1.7 micrograms per liter (ug/L) in samples G-10 and G-10 DUP, respectively
- Tetrachloroethene (PCE) was detected at 0.8 and 0.9 ug/L in samples G-10 and G-10 DUP, respectively
- Chlorobenzene was detected at 1.0 ug/L in both samples
- P-CBSA was not detected in either sample

Well Abandonment

On July 15, well G-10 was abandoned in accordance with the EPA approved workplan and Bulletins 74-81 and 74-90, Water Well Standards, State of California Department of Water Resources. An exclusion

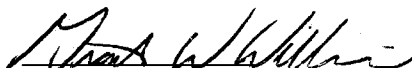


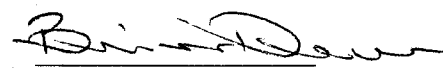
zone was established for well G-10 using cones and caution tape. All persons involved in field activities were required to read and sign the site-specific Health & Safety Plan. At the time of well abandonment, the top of casing was approximately 1 to 1.5 feet below street grade, and the soil around the well casing had been excavated by a Boeing contractor to a depth of approximately 7 to 7.5 feet below the top of casing. The well was permanently sealed in place using a bentonite/cement grout. The grout consisted of 90 percent neat cement and 10 percent bentonite (Hydrogel™). The grout was prepared in 55-gallon batches by mixing 3-bags neat cement with 1/3 bag of bentonite and pumped into the well using a tremie pipe. The tremie pipe was slowly raised during grout injection to ensure the grout did not bridge within the well during placement. Once the grout had reached the top of casing, a pressure cap was fitted onto the wellhead to deliver the grout under pressure. Several attempts were made to place grout into the well casing under pressure. The pumping equipment was disconnected when the grout could no longer be delivered into the well casing under pressure. Approximately 195-gallons of grout was used to seal the well casing during abandonment activities. Following pressure grouting, the upper 6 feet of steel conductor casing was removed using a welding torch. The upper 5.5 to 6 feet of 4-inch diameter PVC well casing was removed using a hand-saw. All construction debris was relocated to the Montrose property pending disposal in a municipal landfill. CH2MHill, EPA's contractor, witnessed abandonment of well G-10, and following which, they determined that soil backfilling and redevelopment activities could commence. The well was inspected 24-hours later to verify that the grout had not fallen significantly below the top of casing. The grout level was satisfactory and the field portion of the project closed.

If you have any questions regarding this letter report, please don't hesitate to contact us at (562) 951-2000.

Very Truly Yours,

EARTH TECH


Grant Williams
Project Geologist

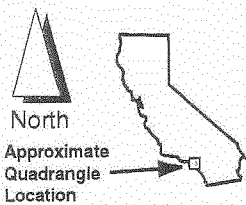
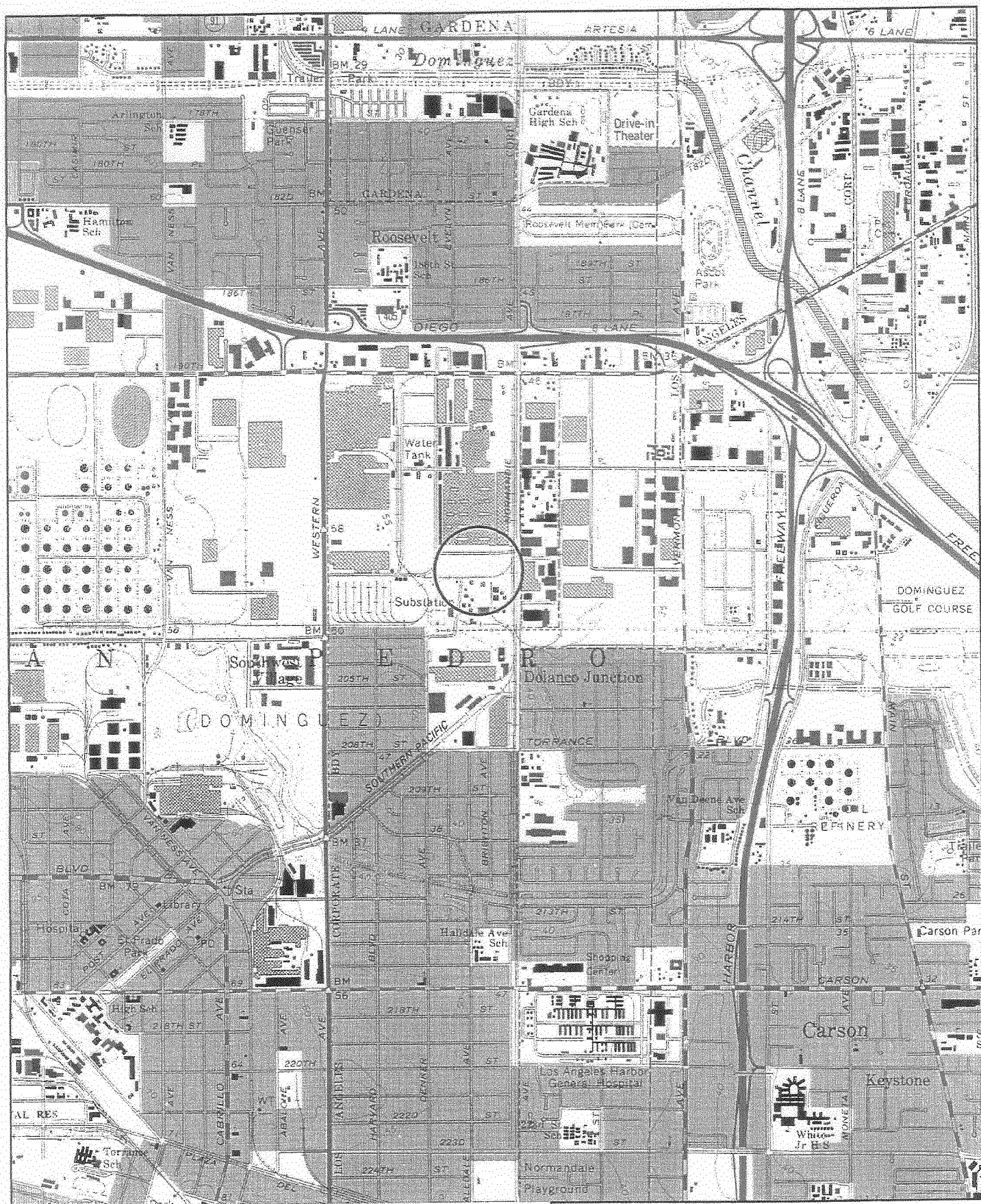

Brian Dean
Senior Engineer

Cc: Mr. Frank Bachman – Montrose Chemical Corp., Bainbridge Island, WA
Mr. Karl Lytz - Latham & Watkins, San Francisco, CA
Mr. Robert Howard – Latham & Watkins, San Diego, CA
Mr. Paul Sundberg – Stockton, CA
Mr. S. Mario Stavale - Boeing Realty Company, Long Beach, CA
Ms. Joann Ornelas - Integrated Environmental Services, Newport Beach, CA

Attachments:

Figure 1 – Site Location Map
Figure 2 – Well Location Map
Table 1 – Groundwater Analytical Data
A - EPA Approved Well Sampling and Abandonment Workplan
B - EPA Workplan Approval Letter
C - Los Angeles County Department of Health Services - Well Destruction Permit
D - Well Purging Data Sheet
E - Laboratory Analytical Report





Source: USGS 7.5 minute topographic map,
Torrance quadrangle, 1981 photorevised

Site Location Map

19503 Normandie Avenue
Los Angeles, California 90501

Date 8-99

Project No.

Montrose Chemical

EARTH TECH

Figure
1

TABLE 1
Groundwater Analytical Results
Montrose Chemical Corporation

EPA 8260 Analyte	Sample ID Units Date Sampled	G-10 ug/L 7/14/99	G-10 DUP ug/L 7/14/99
Dichlorofluoromethane (CFC 12)		<0.5	<0.5
Chloromethane		<0.5	<0.5
Vinyl Chloride		<0.5	<0.5
Bromomethane		<0.5	<0.5
Chloroethane		<0.5	<0.5
Trichlorofluoromethane (CFC 11)		<0.5	<0.5
Acetone		<20	<20
1,1-Dichloroethene		<0.5	<0.5
Carbon Disulfide		<2	<2
Methylene Chloride		<2	<2
trans-1,2-Dichloroethene		<0.5	<0.5
1,1-Dichloroethane		<0.5	<0.5
2-Butanone (MEK)		<20	<20
2,2-Dichloropropane		<0.5	<0.5
cis-1,2-Dichloroethene		<0.5	<0.5
Chloroform		<0.5	<0.5
Bromochloromethane		<0.5	<0.5
1,1,1-Trichloroethane (TCA)		<0.5	<0.5
1,1-Dichloropropene		<0.5	<0.5
Carbon Tetrachloride		<0.5	<0.5
1,2-Dichloroethane		<0.5	<0.5
Benzene		<0.5	<0.5
Trichloroethene (TCE)		2.1	1.7
1,2-Dichloropropane		<0.5	<0.5
Bromodichloromethane		<0.5	<0.5
Dibromomethane		<0.5	<0.5
2-Hexanone		<20	<20
cis-1,3-Dichloropropene		<0.5	<0.5
Toluene		<0.5	<0.5
trans-1,3-Dichloropropene		<0.5	<0.5
1,1,2-Trichloroethane		<0.5	<0.5
4-Methyl-2-pentanone (MIBK)		<20	<20
1,3-Dichloropropane		<0.5	<0.5
Tetrachloroethene (PCE)		0.8	0.9
Dibromochloromethane		<0.5	<0.5
1,2-Dibromoethane (EDB)		<2	<2
Chlorobenzene		1.0	1.0
1,1,1,2-Tetrachloroethane		<0.5	<0.5
Ethylbenzene		<0.5	<0.5
Total Xylenes		<0.5	<0.5
Styrene		<0.5	<0.5
Bromoform		<0.5	<0.5
Isopropylbenzene		<2	<2
1,1,2,2-Tetrachloroethane		<0.5	<0.5
1,2,3-Trichloropropane		<0.5	<0.5

TABLE 1
Groundwater Analytical Results
Montrose Chemical Corporation

EPA 8260 Analyte	Sample ID	G-10	G-10 DUP
	Units Date Sampled	ug/L 7/14/99	ug/L 7/14/99
Bromobenzene		<0.5	<0.5
n-Propylbenzene		<2	<2
2-Chlorotoluene		<2	<2
4-Chlorotoluene		<2	<2
1,3,5-Trimethylbenzene		<2	<2
tert-Butylbenzene		<2	<2
1,2,4-Trimethylbenzene		<2	<2
sec-Butylbenzene		<2	<2
1,3-Dichlorobenzene		<0.5	<0.5
4-Isopropyltoluene		<2	<2
1,4-Dichlorobenzene		<0.5	<0.5
n-Butylbenzene		<2	<2
1,2-Dichlorobenzene		<0.5	<0.5
1,2-Dibromo-3-chloropropane (DBCP)		<2	<2
1,2,4-Trichlorobenzene		<2	<2
1,2,3-Trichlorobenzene		<2	<2
Napthalene		<2	<2
Hexachlorobutadiene		<2	<2
Methyl tert-Butyl Ether		<2	<2
P-CBSA Analysis by Method HPLC			
P-Chlorobenzene Sulfonic Acid		<10	<10

ATTACHMENT A
Well Sampling and Abandonment Plan

July 12, 1999

Mr. Jeffrey Dhont
Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105

Re: **Proposed Well Sampling and Abandonment Plan (Off-Site Well G-10)
Montrose Superfund Site, Los Angeles, California**

Dear Mr. Dhont:

Earth Tech has incorporated EPA's recommendations to the well sampling and abandonment plan. Please find attached a revised sampling and abandonment plan for off-site well G-10. Downhole videotaping and sampling is scheduled to take place on July 14, 1999 with the abandonment taking place the following day, July 15. Mr. Hooshang Nezafati of CH2M Hill has been notified of the schedule. In the original proposal, Earth Tech indicated that a waste classification sample would be collected from the drill cuttings. However, due to the length of the steel conductor casing, no drilling is to take place and the waste classification sample will not be required. If you have any questions or concerns regarding the revised plan, please don't hesitate to contact us at (562) 951-2212. We appreciate your prompt attention to this matter.

Telephone

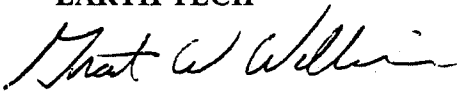
562.951.2000

Facsimile

562.951.2100

Very Truly Yours,

EARTH TECH



For Brian D. Dean
Senior Engineer

E A R T H  T E C H

A TAYCO INTERNATIONAL LTD. COMPANY

BOE-C6-0235950

**Proposed Well Sampling and Abandonment Plan
Off-Site Well No. G-10
Montrose Superfund Site, Los Angeles, California**

July 12, 1999

The subject well (G-10) is located on property adjacent to the Montrose Site and owned by Boeing North American, Inc. The property owner has requested that the well be abandoned to accommodate property redevelopment activities. Well G-10, a groundwater monitoring well screened into the Gage Aquifer to the north of the Montrose Site, will be purged and sampled using conventional means. Following sampling, the well will be abandoned in accordance with State and County standards.

Planning and Permitting

Project team personnel will familiarize themselves with the well construction information as provided in Appendix C, *Final Remedial Investigation Report for the Montrose Site*, May 18, 1998. An application for well abandonment will be submitted to the Los Angeles County Department of Health Services. The application will include a site location map, well location map, well construction diagram, and description of the well abandonment methodology. In addition, Dig-Alert and the on-site construction contractor will be notified in advance of the field activity. A borehole video camera for the purpose of well screen inspection will be sent down prior to well sampling and abandonment activities. The inspection system consists of a surface control unit with a video picture monitor and a high-resolution downhole camera fitted with a wide-angle lens. The inspection will be recorded on videotape and reviewed by CH2M Hill on the day of the inspection to verify that the well screen is in satisfactory condition prior to the commencement of abandonment activities.

Groundwater Well Sampling

Well G-10 will be gauged to measure static groundwater level, purged, and sampled following accepted protocols. The well will be gauged using an electronic interface probe prior to purging and sampling. The depth to water will be measured relative to the top of the well casing. A minimum of three well volumes will be purged from well G-10 prior to sampling. During well purging, the groundwater parameters, temperature, pH, and specific electrical conductivity will be monitored. Well purging will continue until the groundwater parameters stabilize (readings within 10 percent) or until three well volumes are extracted. Well purging will be performed using the existing dedicated submersible pump (if functional). The well purge water will be contained in five steel Department of Transportation (DOT) approved drums and relocated to the Montrose property pending disposal. Following profiling, the drums will be transported under signed manifest for treatment as a non-hazardous waste. Water sampling will be performed once the water level in the well returns to at least 80 percent of its static level. Water samples will be collected using a clean single-use disposal bailer and laboratory-supplied containers. Each sample container will be clearly labeled to identify the well name, date and time of collection, sampler name, analysis, and sample preservative. Samples will be stored in a cooler and delivered to a state-certified laboratory. One duplicate sample will be collected for the purpose of quality control. No trip or equipment rinsate blanks are proposed for this sampling effort. The well samples will be analyzed following EPA Method 8260 for the presence of dissolved volatile organics including benzene, chlorobenzene, chloroform, trichloroethene, tetrachloroethene, and others. The well samples will also be analyzed for the presence of parachlorobenzene sulfonic acid (p-CBSA) following EPA Method 300.0 (ion chromatography). The detection limits for the aforementioned laboratory analyses will

not exceed the in-situ groundwater standards established in Table 9-1 of the Record of Decision for the Dual Site Groundwater Operable Unit (dated March 1999). All field activities will be performed in accordance with the existing Health and Safety Plan and Quality Assurance Plan.

Well Abandonment

Well G-10 will be abandoned in accordance with Bulletins 74-81 and 74-90, Water Well Standards, State of California Department of Water Resources. An exclusion zone will be established for well G-10 using cones and caution tape. The dedicated submersible pump, upon removal, will be inspected to verify that no pronounced scaling, corrosion, or other problems are present that could obstruct proper well abandonment. The submersible pump will be stored at the Montrose property. Well construction details will be reviewed to verify all depths and volumes. The soil around the well casing will be excavated to a depth of 5 feet below grade using a backhoe. The well will be permanently sealed in place using a bentonite/cement grout. The grout will consist of 90 percent neat cement and 10 percent bentonite (Hydrogel™). The grout will be properly mixed in batches prior to placement in the well (e.g.: 1 part bentonite per 9 parts neat cement). The premixed grout will be pumped into the well using a tremie pipe initially placed at total depth. The tremie pipe is slowly raised as the well is filled with grout. This methodology will ensure that the grout does not bridge within the well during placement. The grout will be continuously pumped into the well until filled to surface. The volume of grout consumed during this phase of the abandonment should equal or exceed the empty well volume estimated at 130 gallons (4-inch diameter well to 198 feet below surface). The volume of grout delivered into the well casing will be accurately recorded (by monitoring batch volumes) throughout the field activities as a means of verifying proper well abandonment. Due to the weight of the grout column, some grout will initially seep into the adjacent sand pack and/or formation. As this seepage occurs, additional grout will be added to the well until there is no measurable change in the elevation of grout within the well casing. The well casing will then be sealed as additional grout is pumped into the well under pressure. This pressure will force some grout out the well screen and into the sand pack and/or formation. The amount of grout consumed during this phase is dependent on the nature of the sand pack and adjacent formation and can not be accurately estimated. Grout will continue to be pumped into the well until the pressure within the casing begins to increase exponentially. This relatively sudden pressure buildup is indicative that the adjacent sand pack and/or formation have been adequately sealed. Repeated attempts will be made to place grout into the well casing under pressure. If no further grout can be pumped into the well following 3 successive attempts, the pumping equipment will be disconnected from the well allowing the excess grout to spill out into the excavation. The upper 5 feet of conductor casing will be removed using a welding torch, and the upper 5 feet of PVC casing will be removed using a hand saw. Any construction debris generated during these activities will be relocated to the Montrose property pending disposal in a municipal landfill. The grout will be allowed to set for 24 hours at which time the well will be inspected to verify that the level of grout has not fallen. The excavation will be backfilled if required.

Reporting

A letter report will be prepared to summarize the field activities and laboratory results. The report will include a site location map, a well location map, a summary of the purge and analytical data in tabular format, and copies of the laboratory report, waste manifests, and well permit. The report will be reviewed and signed by a State of California registered professional. A draft report will be provided for review and comment.

ATTACHMENT B
EPA Workplan Approval Letter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

October 4, 1999

Mr. Frank Bachman
Montrose Chemical Corporation of California
600 Ericksen Avenue NE Suite 380
Bainbridge Island, WA 98110

RE: Completion of Abandonment of Well G-10; Montrose Superfund Site,
Los Angeles, CA

Dear Mr. Bachman:

This letter is to confirm EPA's approval of the completion of the abandonment of Monitoring Well G-10. This Gage Aquifer well recently had to be abandoned because it was on the Boeing property north of the Montrose Property and Boeing's redevelopment activities were incompatible with the well due to its location. In our monthly meeting with you on July 21, 1999, we discussed that, as of the date that I left for vacation in late June, EPA had some concerns with respect to the well abandonment plan Montrose had originally drafted for Well G-10. During my vacation absence, Montrose's contractors worked with an alternate RPM in our office on the EPA concerns. Montrose then issued a modified well abandonment plan to EPA, with respect to which EPA relayed two final concerns. Although EPA did not officially correspond with Montrose to approve the plan, Montrose proceeded with the well abandonment after it understood that the remaining two EPA concerns had been addressed.

While EPA does not encourage the practice of proceeding without approval, in this case we acknowledge that Montrose carried out the well abandonment in accordance with the plan that would have been approved by EPA, and that the well abandonment appeared to have been performed properly as evidenced by our field oversight of the effort. EPA is therefore satisfied with the work performed by Montrose for this abandonment. As discussed in our June 21 meeting, EPA requests that Montrose submit a report documenting the abandonment effort, to be supplemented by the video log of the well which was taken prior to abandonment. Please submit this report and log within thirty days of your receipt of this letter.

If you have any questions about this letter, please feel free to call me at (415) 744-2399.

Sincerely,

A handwritten signature in black ink, reading "Jeffrey A. Dhont".

Jeffrey A. Dhont
Remedial Project Manager
Superfund Division

ATTACHMENT C

Los Angeles County Department of Health Services

Well Destruction Permit

DATE

6-30-99

DESCRIPTION

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
☐ RECONSTRUCTION OR RENOVATION
☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
☐ PUBLIC DOMESTIC
☐ IRRIGATION
☒ OBSERVATION/MONITORING
☐ CATHODIC
☐ INDUSTRIAL
☐ GRAVEL PACK
☐ TEST

TYPE OF CASING

4" PVC

METHOD OF SEALING OF CASING

Pressure grout with bentonite/cement grout. (Please see attached documentation for further detail).

METHOD OF DESTRUCTION

Remove upper 5' of conductor & casing with blow torch. Saw upper 5' of PVC casing.

LOCATION

ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)

19503 South Normandie Ave

CITY

Los Angeles

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)

See attached map.

NAME OF WELL DRILLER (PRINT)

TRADE NAME

ADR Drilling

BUSINESS ADDRESS

2475 Carritos Ave Signal Hill, CA 90806

CITY

NAME OF WELL OWNER (PRINT)

Monroe Chemical Corp

MAILING ADDRESS

600 Erickson Ave, Suite 380

CITY

Bainbridge Island, WA 98110

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Michael C. Williams
Applicant's Signature

ENTERED

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

☒ APPROVED

☐ DENIED

☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

WHEN WILL YOU DO THE

DESTRUCTION? (323) 881-447

DATE

SANITARIAN

DATE

7/22/99

SECTION CHIEF

Michael Lin

When signed by Section Chief, this application is a permit.

APPLICANT COPY

ATTACHMENT D
Well Purging Data Sheet

Equipment Information

Bailer No. 01

Pump No. 1

Interface Probe No. 003 Rock

Sounder No. Rock

pH Meter No. 0000

Conductivity Meter No. 0003

Thermometer No. 0003

Well Information

Number G-10

Location May 2008

Datum _____

Elev. Datum Point _____

Ground Elev. _____

Well Diameter 4"

Well Depth _____

Well Material PVC

☐ Development ☒ Purging
 Project Name MON (EOST-) Project No. 3454310
 PID/FID Readings 0 (Ambient) 0 (Well Mouth) _____
 Static Levels 0" (Product) 65-7 (Water) 265
 Pump ☐ /Bail ☒ Rate _____
 Water Column Length _____
 Disposition of Discharge Water SSGAIL D.C.T. down 3

 Specific Capacity _____ (gpm/ft. drawdown) After _____ Hrs.

[illegible]Form F-1003
5/1/95

Recorded By Edwin D. Denny Date 7/14/57

Checked By _____ Date _____

Flow	1 ft length	n^3	gal
2'		0.022	0.16
4'		0.078	0.65
10'		0.55	4.1
20'		0.79	5.9

ATTACHMENT E
Laboratory Analytical Report



July 30, 1999

Brian Dean
Earth Tech, Inc.
100 W. Broadway
Suite 5000
Long Beach, CA 90802

Re: Montrose Well G-10

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on July 16, 1999. The samples were sent to Applied P & Ch Lab for P-Chlorobenzene Sulfonic Acid. Please find their report (#801-994851) attached. For your reference, these analyses have been assigned our service request number L9903068.


All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed. Columbia Analytical Services is not responsible for use of less than the complete report.

Columbia Analytical Services is certified for environmental analyses by the California Department of Health Services (certificate number: 1296A, expiration: August 31, 2000).

If you have any questions, please call me at (818) 587-5550, extension 309.

Respectfully submitted,

Columbia Analytical Services, Inc.


Roy Martinez
Project Chemist

RM/kh

Columbia Analytical Services, Inc.

Acronyms

8015M	California DHS LUFT Method
A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene/Toluene/Ethylbenzene/Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service Registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
CRDL	Contract Required Detection Limit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH or DHS	Department of Health Services
ELAP	Environmental Laboratory Accreditation Program
EPA	U.S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U.S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl- <i>tert</i> -Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	None Detected at or above the Method Reporting/Detection Limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	<i>Standard Methods for the Examination of Water and Wastewater</i> , 18th Ed., 1992.
STLC	Solubility Threshold Limit Concentration
SW	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , SW-846, Third Edition, 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristics Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:
Project:
Sample Matrix:

Earth Tech, Inc.
Montrose Well G-10
Water

Service Request: L9903068

Date Collected: NA

Date Received: NA

Volatile Organic Compounds

Sample Name:
Lab Code:
Test Notes:

Method Blank
L990722-MB

Units: ug/L (ppb)
Basis: NA

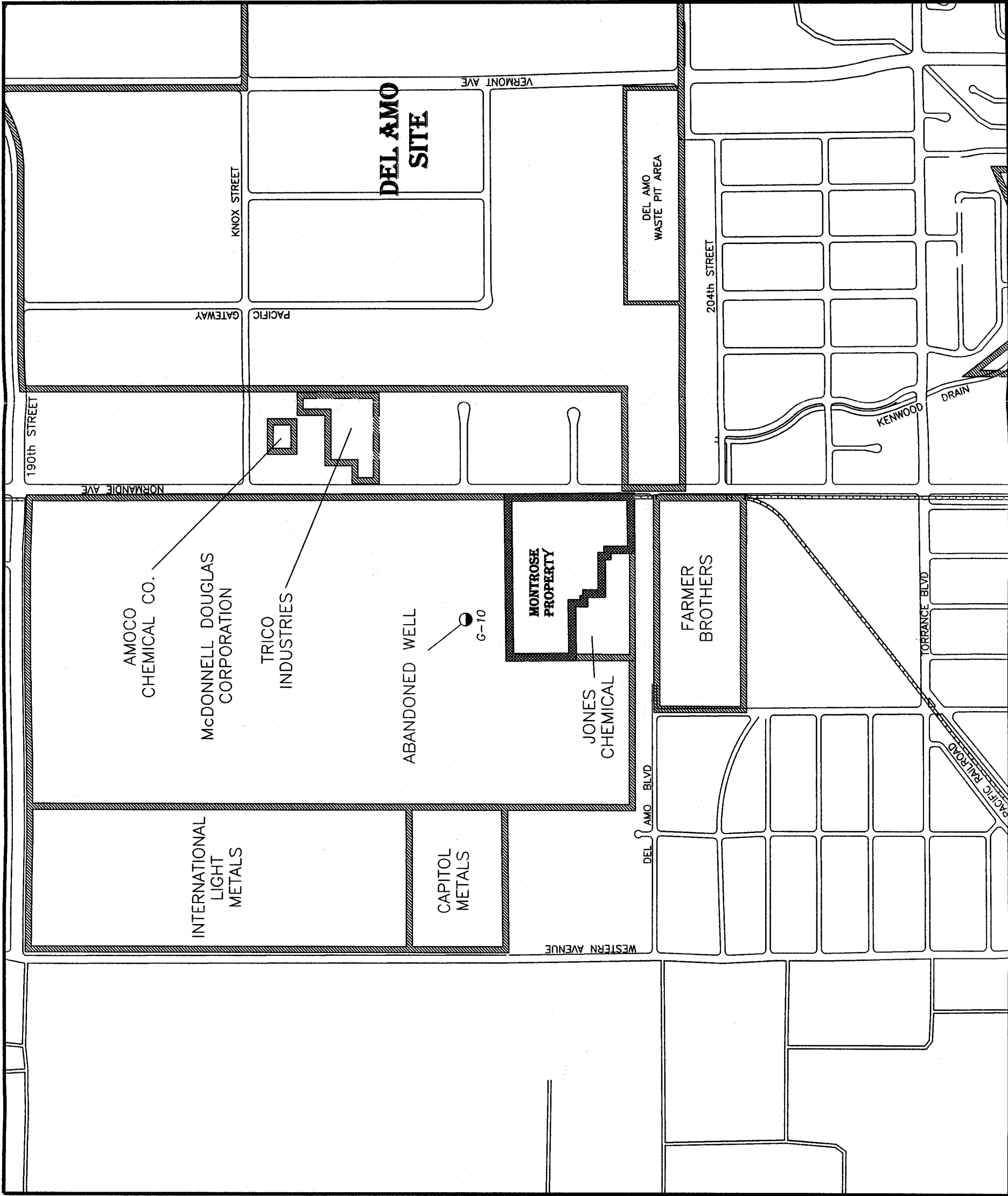
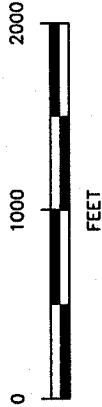
Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Vinyl Chloride	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromomethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Trichlorofluoromethane (CFC 11)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Acetone	EPA 5030	8260B	20	1	NA	7/22/99	ND	
1,1-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Carbon Disulfide	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Methylene Chloride	EPA 5030	8260B	2	1	NA	7/22/99	ND	
trans-1,2-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1-Dichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
2-Butanone (MEK)	EPA 5030	8260B	20	1	NA	7/22/99	ND	
2,2-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
cis-1,2-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloroform	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromochloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,1-Trichloroethane (TCA)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Carbon Tetrachloride	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Benzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Trichloroethene (TCE)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromodichloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Dibromomethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
2-Hexanone	EPA 5030	8260B	20	1	NA	7/22/99	ND	
cis-1,3-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Toluene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
trans-1,3-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,2-Trichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
4-Methyl-2-pentanone (MIBK)	EPA 5030	8260B	20	1	NA	7/22/99	ND	
1,3-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Tetrachloroethene (PCE)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Dibromochloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dibromoethane (EDB)	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Chlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,1,2-Tetrachloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Ethylbenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Total Xylenes	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Styrene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromoform	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Isopropylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	

Approved By: _____

Date: 7/26/99

EXPLANATION

G-10
○ ABANDONED GROUNDWATER MONITORING WELL



WELL LOCATION MAP



E A R T H T E C H

PREP BY _____ REV BY _____ RPT NO. _____

FIGURE 2

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:
Project:
Sample Matrix:

Earth Tech, Inc.
Montrose Well G-10
Water

Service Request: L9903068
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name:
Lab Code:
Test Notes:

Method Blank
L990722-MB

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,2,3-Trichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
n-Propylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
2-Chlorotoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
4-Chlorotoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,3,5-Trimethylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
tert-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,4-Trimethylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
sec-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,3-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
4-Isopropyltoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,4-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
n-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,4-Trichlorobenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,3-Trichlorobenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Naphthalene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Hexachlorobutadiene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Methyl tert-Butyl Ether	EPA 5030	8260B	2	1	NA	7/22/99	ND	

Approved By: _____

Date: 7/22/99

152P/050897p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:
Project:
Sample Matrix:

Earth Tech, Inc.
Montrose Well G-10
Water

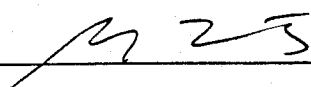
Service Request: L9903068
Date Collected: 7/14/99
Date Received: 7/16/99

Volatile Organic Compounds

Sample Name: G-10
Lab Code: L9903068-001
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Vinyl Chloride	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromomethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Trichlorofluoromethane (CFC 11)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Acetone	EPA 5030	8260B	20	1	NA	7/22/99	ND	
1,1-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Carbon Disulfide	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Methylene Chloride	EPA 5030	8260B	2	1	NA	7/22/99	ND	
trans-1,2-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1-Dichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
2-Butanone (MEK)	EPA 5030	8260B	20	1	NA	7/22/99	ND	
2,2-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
cis-1,2-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloroform	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromochloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,1-Trichloroethane (TCA)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Carbon Tetrachloride	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Benzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Trichloroethene (TCE)	EPA 5030	8260B	0.5	1	NA	7/22/99	2.1	
1,2-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromodichloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Dibromomethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
2-Hexanone	EPA 5030	8260B	20	1	NA	7/22/99	ND	
cis-1,3-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Toluene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
trans-1,3-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,2-Trichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
4-Methyl-2-pentanone (MIBK)	EPA 5030	8260B	20	1	NA	7/22/99	ND	
1,3-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Tetrachloroethene (PCE)	EPA 5030	8260B	0.5	1	NA	7/22/99	0.8	
Dibromochloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dibromoethane (EDB)	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Chlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	1.0	
1,1,1,2-Tetrachloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Ethylbenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Total Xylenes	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Styrene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromoform	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Isopropylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	

Approved By:  Date: 7/26/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:
Project:
Sample Matrix:

Earth Tech, Inc.
Montrose Well G-10
Water

Service Request: L9903068
Date Collected: 7/14/99
Date Received: 7/16/99

Volatile Organic Compounds

Sample Name:
Lab Code:
Test Notes:

G-10
L9903068-001

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,2,3-Trichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
n-Propylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
2-Chlorotoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
4-Chlorotoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,3,5-Trimethylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
tert-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,4-Trimethylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
sec-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,3-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
4-Isopropyltoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,4-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
n-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,4-Trichlorobenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,3-Trichlorobenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Naphthalene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Hexachlorobutadiene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Methyl tert-Butyl Ether	EPA 5030	8260B	2	1	NA	7/22/99	ND	

Approved By: _____

IS2P/050897p

Date: _____

7/24/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:
Project:
Sample Matrix:

Earth Tech, Inc.
Montrose Well G-10
Water

Service Request: L9903068
Date Collected: 7/14/99
Date Received: 7/16/99

Volatile Organic Compounds

Sample Name: G-10 DUP
Lab Code: L9903068-002
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Vinyl Chloride	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromomethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Trichlorofluoromethane (CFC 11)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Acetone	EPA 5030	8260B	20	1	NA	7/22/99	ND	
1,1-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Carbon Disulfide	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Methylene Chloride	EPA 5030	8260B	2	1	NA	7/22/99	ND	
trans-1,2-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1-Dichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
2-Butanone (MEK)	EPA 5030	8260B	20	1	NA	7/22/99	ND	
2,2-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
cis-1,2-Dichloroethene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Chloroform	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromochloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,1-Trichloroethane (TCA)	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Carbon Tetrachloride	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Benzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Trichloroethene (TCE)	EPA 5030	8260B	0.5	1	NA	7/22/99	1.7	
1,2-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromodichloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Dibromomethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
2-Hexanone	EPA 5030	8260B	20	1	NA	7/22/99	ND	
cis-1,3-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Toluene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
trans-1,3-Dichloropropene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,1,2-Trichloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
4-Methyl-2-pentanone (MIBK)	EPA 5030	8260B	20	1	NA	7/22/99	ND	
1,3-Dichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Tetrachloroethene (PCE)	EPA 5030	8260B	0.5	1	NA	7/22/99	0.9	
Dibromochloromethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dibromoethane (EDB)	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Chlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	1.0	
1,1,1,2-Tetrachloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Ethylbenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Total Xylenes	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Styrene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromoform	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Isopropylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,1,2,2-Tetrachloroethane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	

Approved By:

Date:

7/26/99

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:
Project:
Sample Matrix:

Earth Tech, Inc.
Montrose Well G-10
Water

Service Request: L9903068
Date Collected: 7/14/99
Date Received: 7/16/99

Volatile Organic Compounds

Sample Name:
Lab Code:
Test Notes:

G-10 DUP
L9903068-002

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
1,2,3-Trichloropropane	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
Bromobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
n-Propylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
2-Chlorotoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
4-Chlorotoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,3,5-Trimethylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
tert-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,4-Trimethylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
sec-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,3-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
4-Isopropyltoluene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,4-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
n-Butylbenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2-Dichlorobenzene	EPA 5030	8260B	0.5	1	NA	7/22/99	ND	
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,4-Trichlorobenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
1,2,3-Trichlorobenzene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Naphthalene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Hexachlorobutadiene	EPA 5030	8260B	2	1	NA	7/22/99	ND	
Methyl tert-Butyl Ether	EPA 5030	8260B	2	1	NA	7/22/99	ND	

Approved By: _____

1S2P/050897p

Date: 7/26/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Earth Tech, Inc.
Project: Montrose Well G-10
Sample Matrix: Water

Service Request: L9903068
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary Volatile Organic Compounds

Prep Method: EPA 5030
Analysis Method: 8260B

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	P e r c e n t R e c o v e r y		
			Dibromofluoromethane	Toluene-D ₈	4-Bromofluorobenzene
G-10	L9903068-001		107	98	95
G-10 DUP	L9903068-002		96	100	94
Method Blank	L990722-MB		109	97	96
Batch QC	L9903049-007MS		103	97	91
Batch QC	L9903049-007DMS		106	97	91

CAS Acceptance Limits: 70-130 88-110 86-115

Approved By:  **Date:** 7/26/99

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Earth Tech, Inc.
Project: Montrose Well G-10
Sample Matrix: Water

Service Request: L9903068
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 7/22/99

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name: Batch QC
Lab Code: L9903049-007MS, L9903049-007DMS
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Spike Level			Sample Spike Result			Percent Recovery				CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS	Result	MS	DMS	MS	DMS						
1,1-Dichloroethene (1,1-DCE)	EPA 5030	8260B	0.5	5.00	5.00	ND	5.95	6.31	119	126	61-145	6				
Trichloroethene (TCE)	EPA 5030	8260B	0.5	5.00	5.00	ND	5.71	5.72	114	114	71-120	<1				
Benzene	EPA 5030	8260B	0.5	5.00	5.00	ND	5.21	5.48	104	110	76-127	5				
Toluene	EPA 5030	8260B	0.5	5.00	5.00	ND	5.31	5.48	106	110	76-125	3				
Chlorobenzene	EPA 5030	8260B	0.5	5.00	5.00	ND	5.15	5.35	103	107	75-130	4				

Approved By: _____

Date: _____

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

Columbia Analytical Services (Canoga Park, CA)

Attention: Roy Martinez

6925 Canoga Avenue

Canoga Park CA 91303

Tel: (818)587-5550 Fax: (818)587-5555

APCL Analytical Report

Service ID #: 801-994851

Received: 07/17/99

Collected by:

Extracted: N/A

Collected on: 07/14/99

Tested: 07/19/99

Reported: 07/26/99

Sample Description: Water

Project Description: Montrose Well G-10

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result	
				G-10	G-10 DUP
				99-04851-1	99-04851-2
P-Chlorobenzene Sulfonic Acid	HPLC	mg/L	10	ND	ND

PQL: Practical Quantitation Limit.

MDL: Method Detection Limit.

CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit.

"-": Analysis is not required.

J: Reported between PQL and MDL.

Respectfully submitted,



Dominic Lau

Laboratory Director

Applied P & Ch Laboratory

APCL QA/QC Report

Submitted to:

Columbia Analytical Services (Canoga Park, CA)

Attention: Roy Martinez

6925 Canoga Avenue

Canoga Park, CA 91303

Tel: (818) 587-5550 Fax: (818) 587-5555

Service ID #: 801-994851

Collected by:

Collected on: 07/14/99

Sample description:

Water

Project: Montrose Well G-10

Received: 07/17/99

Tested: 07/19/99

Reported: 7/30/99

Analysis of Water

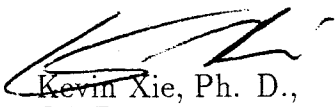
801-994851QC

Component Name	Analysis Batch #	CCV ($\mu\text{g/L}$)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	%Diff
p-CBSA												
para-Chlorobenzene Sulfonic Acid	99G3585	25000	95	N.D.	mg/L	25.0	99	104	103	1	65-135	30

Notation: ICV - Initial Calibration Verification
CCV - Continuation Calibration Verification
LCS - Lab Control Spike
MS - Matrix Spike
MSD - Matrix Spike Duplicate
ICS - Interference Check Standard
MD - Matrix Duplicate
N.D. - Not detected or less than PQL

CCB - Continuation Calibration Blank
M-blank - Method Blank
SP Level - Spike Level
%Rec - Recovery Percent
%RPD - Relative Percent Differences
%Diff - Control Limit for %RPD
ICP-SD - ICP Serial Dilution
N.A. - Not Applicable

Respectfully submitted,


Kevin Xie, Ph. D.,
QA Director
Applied P & Ch Laboratory

